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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/508,999	09/27/2004	Shinobu Komiyama	1232-32	1314

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EXAMINER	
GOLOBOY, JAMES C	
ART UNIT	PAPER NUMBER
1797	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/508,999	KOMIYAMA ET AL.	
	Examiner	Art Unit	
	James Goloboy	1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 September 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *26-53* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *26-53* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *9/27/04 & 12/10/04S*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 26, 29, 31, 33-34, 38, and 40 are rejected under 35 U.S.C. 102(b) as being anticipated by Hanano (GB 2257712 A).

Hanano, in paragraph 3 of page 2, discloses a powdered lubricant, as recited in claim 33, comprising a lubricant base material which is an inorganic compound, coated with an organic compound. In paragraph 1 of page 3, Hanano discloses that the inorganic compound can be a metal oxide or molybdenum disulfide, polyvalent metal compounds as recited in claims 26 and 29. In paragraph 2 of page 3, Hanano discloses that the organic compound is generally a metal soap, also as recited in claim 26, and that these soaps can be alkali metal (lithium, sodium, potassium) salts of fatty acids, as recited in claim 31. The powdered lubricant of Hanano therefore meets the limitations of claims 26, 29, 31, 33-34, 38, and 40.

3. Claims 26, 28-31, and 33-34 are rejected under 35 U.S.C. 102(b) as being anticipated by Worms (U.S. Pat. No. 3,619,264).

In column 1 lines 37-54, Worms discloses a finely divided inorganic compound treated with a fatty acid or fatty acid ester. In column 1 lines 71-73 Worms discloses that

the inorganic compounds are primarily polyvalent metals. The treated inorganic compound of Worms will therefore meet the limitation of claim 26, as the treatment described in column 2 lines 45-71 will result in the coating of the metal by a metal soap.

In column 2 lines 2-10, Worms discloses that the inorganic can be metal oxides or carbonates, as recited in claim 29, and the metals can be many of those recited in claim 28, including zinc as in claim 30. The composition of Worms will also comprise a water soluble ester of a fatty acid (column 1 lines 58-67, where R' is an alkyl group), as recited in claims 31 and 34.

4. Claims 27 and 32 are rejected under 35 U.S.C. 102(b) as being anticipated by Worms in light of the evidence provided by Linton (U.S. Pat. No. 5,024,826).

The discussion of Worms in paragraph 3 above is incorporated here by reference. Worms discloses a particle meeting the limitations of claim 29 where the metal compound can preferably be the carbonates of calcium, barium, and lead, and the proportion of the soap coating is preferably 2% to 10% by weight (column 2 lines 48-50). Worms discloses in column 1 line 43-44 that the metal compound is in "finely-divided form" but does not define what particle size qualifies as "finely-divided".

Linton, in paragraph 2 lines 55-62, teaches that finely divided calcium, barium, and lead carbonates have particle sizes of less than 300 microns. Linton therefore provides evidence that the finely divided carbonates of Worms meet the limitation of claims 27 and 32.

5. Claims 26, 28-29, and 33 are rejected under 35 U.S.C. 102(b) as being anticipated by Tanioka (U.S. Pat. No. 4,192,793).

In column 2 lines 5-8 Tanioka discloses calcium hydroxide coated with a calcium salt of an organic acid, and in column 1 lines 49 through column 2 line 23 Tanioka discloses that the organic acids are preferably fatty acids. The calcium salt is therefore a metal soap, and the particles Tanioka meet the limitations of claims 26, 28-29, and 33.

6. Claims 26-29, and 31-33 and are is rejected under 35 U.S.C. 102(b) as being anticipated by Saeki (JP 11-100205).

A machine translation and an English abstract of Saeki have been used in setting forth this rejection.

In the abstract, Saeki discloses a method of producing amorphous calcium phosphate with a particle size of less than 300 microns, and discloses that the calcium phosphate can further be treated with a fatty acid. In paragraph 21, Saeki discloses that the calcium phosphate can be coated with 5% by weight of aluminum stearate, a metal soap. The coated particles of Saeki therefore anticipate the particles of claims 26-29 and 31-33 for the case where the polyvalent metal compound is calcium phosphate.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. Claims 35-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Worms in view of Tanioka in light of the evidence provided by Linton.

The discussions of Worms, Linton, and Tanioka in paragraphs 3-5 are incorporated here by reference. Worms discloses particles meeting the limitations of claims 26 and 34, but does not disclose a suspension containing the particles, or a process for preparing the particles comprising mixing the metal compound with the acid in water at elevated temperature.

In column 4 lines 3-22, Tanioka discloses a process for preparing a metal salt coated with a metal soap comprising combining the products in water at 90° C and drying the resulting suspension. The preparation of the particles of Worms by this method meets the limitations of claims 36-37, and the suspension meets the limitations of claim 35, as Linton provides evidence that the particle size of the metal compounds of Worms is less than 20 microns.

10. Claims 38-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saeki in view of Ichitsuka.

The discussion of Saeki in paragraph 6 above is incorporated here by reference. Saeki discloses a surface-treated calcium phosphate meeting the limitations of claims 26-29 and 31, and in paragraph 1 discloses that the calcium phosphate can be used in coatings, but does not specifically disclose a coating with the thickness recited in claim 39.

Ichitsuka, in column 3 lines 26-30, discloses a packing material consisting of a spherical substrate coated with calcium phosphate. In column 5 lines 36-42, Ichitsuka discloses that the thickness of the coating is preferably from 0.5 to 50 microns, matching the range recited in claim 39. The use of the surface-treated calcium phosphate of Saeki as the coating in the packing material of Ichitsuka therefore meets the limitations of claims 38-41.

It would have been obvious to one of ordinary skill in the art to form a lubricating coating containing the calcium phosphate of Saeki in the thickness taught by Ichitsuka, as Ichitsuka teaches that it is a desired coating thickness for a packing material.

11. Claims 42-46, 49, and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saeki in view of Shirkhanzadeh (U.S. Pat. No. 5,211,833).

The discussion of Saeki in paragraph 6 above is incorporated here by reference. Saeki discloses a surface-treated calcium phosphate meeting the limitations of claims

26-29, and in paragraph 1 discloses that the calcium phosphate can be used in coatings, but does not specifically disclose the lubricating coating forming agent of claim 42.

From column 5 line 53 through column 6 line 2, Shirkhanzadeh discloses a method of coating a titanium alloy with a calcium phosphate coating, comprising electrolyzing the alloy in a bath containing calcium phosphate, sodium chloride, and water. The use of the surface-treated calcium phosphate of Saeki in this bath meets the limitations of claims 42-46. As the weight ratio of sodium chloride to calcium phosphate in the bath is approximately 2.9, the limitations of claim 49 are met as well. The coating formed from the process of the Saeki and Shirkhanzadeh meets the limitations of claim 53.

It would have been obvious to one of ordinary skill in the art to form coatings of the surface-treated calcium phosphate of Saeki through the use of the lubricating coating forming agent of Shirkhanzadeh, as Shirkhanzadeh teaches that it is a suitable bath for coating titanium.

12. Claims 47-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saeki in view of Shirkhanzadeh as applied to claims 42-46, 49, and 53 above, and further in view of Lashmore (U.S. Pat. No. 4,461,680).

The discussion of Saeki in view of Shirkhanzadeh in paragraph 11 above is incorporated here by reference. Saeki in view of Shirkhanzadeh discloses a lubricating forming agent meeting the limitations of claim 42, but does not disclose compositions

containing the salts of claims 47-48. Saeki in view of Shirkhanzadeh discloses a sodium chloride electrolyte.

In column 2 lines 32-42, Lashmore discloses a process and aqueous electrolyte for coating a metal substrate. The electrolyte of Lashmore comprises a sodium salt of citric acid, meeting the limitations of claim 48, and boric acid. As the aqueous solution contains sodium ions and borate ions, it is considered to contain a dissolved sodium borate salt, and therefore meets the limitations of claim 47 as well.

It would have been obvious to one of ordinary skill in the art to use the citrate and borate electrolytes of Lashmore in the composition of Saeki in view of Shirkhanzadeh, as Lashmore teaches that they are suitable electrolytes for aqueous baths used in coating metal substrates.

13. Claim 50 is rejected under 35 U.S.C. 103(a) as being unpatentable over Saeki in view of Shirkhanzadeh as applied to claims 42-46, 49, and 52 above, and further in view of Hoke (U.S. PG Pub. No. 2001/0031693).

The discussion of Saeki in view of Shirkhanzadeh in paragraph 11 above is incorporated here by reference. Saeki in view of Shirkhanzadeh discloses a composition meeting the limitations of claim 50, but does not further disclose the addition of a smectite clay to the composition.

Hoke, in paragraph 233, teaches that the adhesion of compositions to metal surfaces can be improved by the incorporation of clay minerals, such as smectite clays.

The addition of a smectite clay to the composition of Saeki in view of Shirkhanzadeh meets the limitations of claim 50.

It would have been obvious to one of ordinary skill in the art to add the smectite of Hoke to the composition of Saeki in view of Shirkhanzadeh, in order to improve the adhesion of the calcium phosphate coating to a metal substrate.

14. Claim 51-52 is rejected under 35 U.S.C. 103(a) as being unpatentable over Saeki in view of Shirkhanzadeh, as applied to claims 42-46, 49, and 53 above, and further in view of Trivett (U.S. Pat. No. 6,001,784).

The discussion of Saeki in view of Shirkhanzadeh in paragraph 11 above is incorporated here by reference. Saeki in view of Shirkhanzadeh discloses a coating forming agent meeting the limitations of claim 42, but not further comprising an auxiliary lubricating ingredient as recited in claim 51 or an organic macromolecular compound as recited in claim 52.

Trivett, in column 1 lines 6-12, discloses a solid film coating for metal substrates comprising a wax, as recited in claim 51. In column 6 lines 27-46, Trivett discloses that the composition also comprises a polymer with a molecular weight of at least 2,000, overlapping the range recited in claim 52. The incorporation of the wax and polymer of Trivett into the composition of Saeki in view of Shirkhanzadeh meets the limitations of claims 51-52.

It would have been obvious to one of ordinary skill in the art to include in the composition of Saeki in view of Shirkhanzadeh a wax and a polymer, as taught by

Trivett, in order to form a prelubricant coating prior to use of the metal substrate in a metalworking operation.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Goloboy whose telephone number is 571-272-2476. The examiner can normally be reached on M-F 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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